Technical Bulletin #79:

Integrated Pest Management Practices for Crop Production

Practices used before planting:

1. **Weed and alternate host control** to prevent reproduction of pests and diseases within crop grounds.
2. **Proper land preparation** is important to avoid water logging, to stimulate root growth, and in controlling weeds. Deep plowing, raised beds, and in farm drainages also are important in avoiding fungal and bacteria growth.
3. **Crop rotation** is advisable to prevent the buildup of pests and diseases over time. Always rotate with different crops that belong to different families.
4. **Plant live barriers** to isolate or protect your crops from insect pests that can transmit viruses on crops such as; cucurbits (cucumber, pumpkin, squash) and solanaceous crops (tomato, eggplant, peppers). Live barriers must either be plantings of corn, sorghum, sugar cane, bamboo or tall grasses (king grass).
5. **Use yellow sticky traps** to monitor incoming insect vectors before planting.
6. **Use silver plastic mulch** to repel incoming insects (aphids, leafhoppers, etc), help prevent weed growth and to maintain crop moisture in the beds.
7. **Use rice straw, husk or ash between beds** to prevent weed growth. When no plastic mulch is available, materials such as rice husks can also be used between plants to prevent weed growth and to "hide" transplants from insect vectors. Mulching also helps to reduce high humidity between beds which will reduce fungal and bacteria infestations.
8. **Produce healthy seedlings** by using mosquito netting or other covers over seed trays to keep seedlings free of pests and diseases.
9. **Use resistant varieties** whenever they are available that have tolerance to certain diseases, are heat-tolerant, or are adaptable to certain prevalent growing conditions.

The use of hybrid seeds

The use of silver plastic mulch as a repellent of pests

A weed-free crop with rice husks between beds

Practices used after planting the crop:

10. **Use proper plant density and plant to plant spacing** to maximize production, avoid potential disease problems, and to maximize resources.

11. **Good water management** prevents excessive soil moisture which can be harmful to your crop, promotes weed growth, and creates a welcoming environment for fungal and bacterial disease development.

12. **Maintain good plant nutrition** which promotes good plant growth and production and will prevent excessive disease development.

13. **Conduct proper pest and disease identification** to be able to use appropriate pest and disease control strategies.

Live barrier taller than the crop

14. **Early detection and destruction of virus infected plants** will prevent disease dissemination within the current crop cycle as well as reduce disease pressure on the next planting cycle.

15. **Scouting/sampling of crops twice weekly** to make proper management decisions based on pest density and disease incidence.

16. **Use botanical pesticides** whenever possible to reduce overall chemical use and combine this with cultural IPM practices.

17. **Use of detergent plus vegetable oil (3 grams/liter and 1 ml/liter, respectively)** to kill aphids and other soft bodied insects especially during the harvest period when no selective pesticides should be applied.

18. **Pruning infected leaves** to avoid dissemination of fungal and bacterial diseases.

19. **Hand killing pests** to maintain low levels of pest population whenever possible in home gardens. Normally, eggs, larvae and pupae can be killed easily.

Drains are important to avoid waterlogging

20. **Use of ashes and limestone in planting holes affected by fungi or bacteria** to drastically change the soil pH in the planting holes, which will assist in preventing fungi and bacteria from reproducing and invading new transplants and neighboring plants.

21. **Use of hanging pheromone traps** within the crops (such as bitter and ridged melons), which will kill adult fruit flies and lower the fly population helping prevent fruit infestation.

22. **Protect fruit against fruit flies using paper, plastic or local material envelopes.** Fruit can be loosely wrapped using paper, plastic bags, or banana leaves that will keep out female fruit flies.

Early removal of plant viruses

23. **Destruction of insects and diseases** will break the life cycle of the pests and diseases and will reduce the damage of current and future plantings.

24. **Crop elimination as soon as the harvest is finished** to prevent the survival of pest and diseases in crop residue, which can spread to nearby crops.

Scouting or sampling for pests twice a week

Yellow traps for monitoring insect populations

Pheromone trap for fruit fly control

The use of plastic bags to protect fruits

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